



PALGRAVE STUDIES IN MEDIEVAL AND
EARLY MODERN MEDICINE

Automata, Cyborgs, and Mutants

Eccentric Bodies from Humanism
to Transhumanism

Edited by
Jil Muller

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Automata, Cyborgs, and Mutants

Eccentric Bodies from Humanism to
Transhumanism

V I V A M E N T E
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PREFACE

In this anthology, *Automata, Cyborgs and Mutants: Eccentric Bodies from Humanism to Transhumanism*, the reader is taken on a journey through the corridors of history, tracing the evolution of these eccentric bodies from the lofty ideals of humanism to the frontiers of transhumanism. From the ancient myths of automata crafted by skilled artisans, to modern cyborgs that seamlessly integrate man and machine, to speculative mutants that challenge the very essence of what it means to be human, this collective work serves as a testament to humanity's relentless quest for self-understanding and self-transcendence.

As readers delve into the pages of this book, they will be invited to consider profound questions about identity, agency, and the nature of existence itself. What does it mean to be human in an age when technology is blurring the boundaries between the biological and the artificial? How do humans navigate the ethical dilemmas posed by an increasingly intimate relationship with machines and genetic engineering? And what future awaits humans as we venture further into the uncharted territories of transhumanism?

The completion of this collective work has been a collaborative endeavour, made possible by the contributions and support of many individuals and institutions.

First and foremost, we extend our deepest gratitude to the authors whose insightful contributions have enriched the pages of this book. Their

dedication, expertise and passion have been instrumental in shaping the diverse perspectives presented in these chapters.

We would like to express our gratitude to the series editors, Dr. Fabrizio Bigotti and Prof. Jonathan Barry, who have generously given their time and expertise to ensure the quality and rigour of this publication. Their invaluable feedback and guidance have been instrumental in refining the content and structure of this collective work.

We are indebted to the Centre for the Study of Medicine and the Body in the Renaissance (CSMBR) and the VivaMente Grant (CSMBR_VIV004.2022), without which we could not have organised an exciting two-day conference, of which this book is the fruitful outcome. The Centre has provided us with the resources, facilities and financial support to undertake this ambitious project. Their commitment to advancing scholarship and fostering interdisciplinary dialogue is deeply appreciated.

Paderborn, Germany
March 2024

Dr. Jil Muller

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Introduction: Automata, Cyborgs, and Mutants: Eccentric Bodies from Humanism to Transhumanism

Jil Muller

Since the COVID pandemic, we have come to realize how fleeting human life is and how vulnerable the human body is. It only took a “small” virus to wipe out thousands of lives and put the world on edge. An initially harmless cough and fever quickly turned into a deadly virus that dominated and controlled our world for two years. The political and medical measures were control, isolation, curfews, vaccinations (which were produced at a rapid pace), contact restrictions, and much more that took a toll on everyone’s private lives. If some were hoping for science fiction atmospheres and world orders, they were quickly disabused. No one became Will Smith, the loner with a German shepherd, in “I Am

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Legend,” or Arnold Schwarzenegger as the Terminator. Instead, we realized that we are still far from the ideal of posthumanism and the immortal human being, and that our bodies are still our limit.

And yet the idea of overcoming the human body as such has been revived, perhaps precisely because it was the weak element in this pandemic. Overcoming the human body means not only upgrading it with technical means, as in the case of the cyborg, or making it more robust and stable (as in the case of the Mutants), but also adapting it to new situations, adapting it so that it can be replaced at will when it is defective or inferior. This is the idea of eccentric bodies, which we can find in transhumanism and posthumanism. Eccentric bodies can take different forms; they adapt themselves or are adapted by men to different environments and changing natural conditions, and they can change their movements and behavior.¹ This idea is not new, but our current research gives it a fresh perspective, presenting it in the form of a cyborg or mutant. Rooted in experiments and theories of automata that date back to the Renaissance, this research seeks to imbue these automata with greater autonomy and a biological dimension.

The aim of this book is therefore to show that the basic ideas of transhumanism and posthumanism are not fundamentally new,² that they have their origins already in antiquity, but above all later in humanism, and that they can only be taken up and formulated anew today through the further development of technology. Using the method of reception history (cf. Hans Blumenberg), the book attempts to show that the course for transhumanism and posthumanism was set in humanism itself, and that posthumanism is therefore the natural outcome by overcoming humanism as anthropocentrism.

The objective is to trace the long way to transhumanist or even posthumanist thought, which began in the late Middle Ages, with the first ideas of resurrection and therefore of reanimation. It then passed through the various advances in medicine and the inventions of prostheses and automata in the seventeenth century, reflected not only in philosophy from the Renaissance onwards but also in the art of that period, and it reached its apogee in the thinking of cyborgs and mutants, with contemporary thinkers who imagine a human society that goes beyond its own limits.

Historically and philosophically, there is a continuity from humanism to transhumanism and posthumanism. Current transhumanism has its origins mainly in the English-speaking world and can generally be traced

back to the 1960s, when it was very popular in California. The origins of posthumanism, on the other hand, lie more in the mid-1980s and developed out of transhumanism.³ The central idea of transhumanism was to find a way to prolong human life, delay mortality, and increase mental capacity. The cyborg would be such a life form for transhumanism. Posthumanism focuses on replacing humans with artificial offspring in the form of robots, coupled with artificial intelligence, claiming that there is no fixed nature or a fixed boundary between natural and artificial beings.

In transhumanism, man is still at the center of attention; in posthumanism, man's annihilation is already being sought. Humans are to be replaced by machines, which are to be the carriers of evolution and progress, striving for technical immortality. Transhumanism, on the other hand, sees itself as evolutionary humanism: it wants better health, education, and welfare for the whole of humanity. The aim is to improve the human being as such and thus to correct the "mistakes" of evolution by creating an optimal life form that combines and enhances various biological characteristics so that the human being as such becomes better, morally and intellectually. The idea of the cyborg was to embody this ideal of transhumanism by augmenting human biological characteristics with mechanical and electronic "prostheses."⁴

Posthumanism, however, embraced the fusion of human and machine as an opportunity to transcend humanity—particularly the limitations of the human body—and to challenge traditional dichotomies such as mind-body, male-female, and natural-artificial. For them, the human brain is the neural interface to the computer: the human-machine hybrid was the first step toward a perfect simulation of a person stored in a computer. For posthumanist authors, the supposedly mechanistic mode of operation attributed to the body and mind in the sixteenth and seventeenth centuries makes it possible to compare the human being as a unit with a machine, and even to combine him with a machine. Does this mean that posthumanism is the end of humanism? One thing is clear: the focus of posthumanism is not on the human being as such, but on the economy and the utilitarian character of machines. The goal of posthumanism is immortality, and in order to achieve this, posthumanism also abandons the human being. In order to achieve eternal life, human limits must be transcended to the point where man is no longer human, to the point where his body can be arbitrarily replaced and even overcome.

All these ideas have their origins in humanism. Humanism sought to realize the greatness of man. Reason and human morality were central.

Humanism, at least the one that developed from Cartesian dualism, emphasized a self-regulating and moral reason.⁵ In the sixteenth and seventeenth centuries, the focus is on reason, and the aim is to improve people intellectually and morally (just look at the many moral treatises; the spread of philosophical ideas through the invention of the printing press; the emerging process of secularization and thus a profane morality and ethics). The body, as a unit of parts subject to basic mechanistic principles (like in Descartes and Hobbes), plays only a subordinate role in this conception (in contrast to later transhumanism). Although humanism also strives for a healthy body (*mens sana in corpore sano*) that supports reason, the idea that the body is subject to biology and evolution is still very much present. The body, as matter that has its own functioning, has received attention through Cartesian dualism, but it has also been understood as something that humans must accept, live with and heal when it no longer functions. The body is then an element whose functioning needs to be understood so that it can be controlled and/or conditioned, but there is no aspiration to transcend the limits of nature, biology, or the body.

This is not to say that this age did not use external aids to support the body. As early as the sixteenth century, the first attempts were made to support and thus enhance the body with mechanical prostheses. Ambroise Paré, a French military surgeon who was celebrated until the nineteenth century as the pioneer of modern surgery, invented the first mechanical hand prosthesis that could realistically reproduce the specific movements of a hand (opening and closing, grasping, moving fingers, etc.).⁶ The idea of humanism was to understand the body as a mechanical element and to reproduce its functioning. This is why it is also the age of the automaton. From Descartes to La Mettrie to Vaucanson, the automaton, as an image of the human body, was very popular because it contained the principle of its movement, making it clear that the human body could move without the soul. This not only supported Descartes's theory of two substances, but later made possible the idea of an arbitrarily interchangeable body.

Automata generally refer to hypothetical beings or entities that operate on the basis of purely mechanical processes, like a machine, without possessing consciousness or subjective experience.⁷ They are usually created by humans to mimic the movements of the human body or other mechanical movements. Philosophers often used automata as thought experiments to discuss questions about the nature of consciousness,

cognition, and the mind-body problem, as has been the case especially since the philosophy of the Renaissance.⁸

However, automata include not only imitations of human body parts (see prostheses), but also mechanical instruments set in motion by springs, internal weights, etc., such as clocks. We find the clockwork model already in Descartes' idea of man as an automaton in his *Traité de l'homme*.⁹ And in the seventeenth and eighteenth centuries, watchmakers, in particular, attempted to reproduce the moving human body. For a long time, the watch was the model for various types of automata, because once it had been assembled and wound by the watchmaker, it moved by itself.

During the eighteenth and nineteenth centuries, automata experienced a golden age in Europe. Intricate clockwork automata, known as "automaton dolls," were crafted to simulate human-like movements. These automata were often dressed in exquisite clothing and performed various tasks, such as writing, painting, playing musical instruments, and even performing magic tricks. One of the most famous automata of this period was "The Turk," a chess-playing automaton designed by Wolfgang von Kempelen in the 1770s.¹⁰ The Turk was later revealed to be an elaborate hoax, operated by a hidden human chess player inside the machine. Nevertheless, it captured the imagination of the public and became a symbol of the potential of machines to exhibit human-like intelligence.

In the twentieth and twenty-first centuries, artists and creators have continued to explore the concept of automata in various forms of media, including literature, film, and digital art. Automata have become a recurring theme in science fiction, raising questions about the nature of consciousness, the boundaries between man and machine, and ethical considerations related to artificial intelligence. In summary, automata have left a significant mark on the history of medicine, philosophy, and arts. They have served as instruments for medical training, prompted philosophical inquiries into the nature of life and consciousness, and inspired artistic expressions of human creativity and technical ingenuity. With the emergence of contemporary transhumanism, the question of automata has changed: automata are now closely related to the study of artificial intelligence and autonomous systems. Today, automata are computer programs or machines capable of performing tasks that normally require human intelligence.

But in the beginning, an automaton was just a machine that moved on its own. This principle of the self-movement of the body was a key element of Cartesian theory and was later taken up by La Mettrie.¹¹

For Descartes, all movements in the body were subject to the laws of mechanics. For him, therefore, physiology was a branch of physics in which material events were of a mechanical nature and could ideally also be described mathematically. La Mettrie took up this interpretation of Descartes, but also went beyond Descartes by attributing functionalist and materialist properties to the soul. Descartes' machines are intensive automata based on the clockwork model.¹² La Mettrie's machines, however, can wind themselves up and even read clocks. In Cartesian dualism, the soul was an independent substance that could exist without the body, just as the body could move without the soul. La Mettrie replaced the concept of the soul as a substance with the model of a cerebral mechanism that gave rise to mental activity. This enabled his machines to perform more specific movements than those of Descartes because they were cerebrally controlled and did not merely incorporate the principle of self-motion.

But Descartes' innovation with dualism must not be forgotten. He saw thought as detached from the body and thus indirectly laid the foundations for artificial intelligence. If thought no longer needs a body to exist, then this intelligence can exist outside the body and be used in other ways, which is what we see today with artificial intelligence. The milestones for transhumanism and posthumanism were thus largely set in humanism itself, with Descartes' dualism playing a central role. Descartes' dualism was the perfect foundation for the idea of a machine simulation of man for the posthumanists who came from philosophy¹³: from the hypothetical body machine created by God to posthumanism, where man himself becomes the "watchmaker."

Descartes' dualism enabled posthumanism, on the one hand, to think of reason as separate from the body and therefore in the form of artificial intelligence, and on the other, the body itself as separate from the soul, as a machine, and therefore arbitrarily replaceable. Posthumanists also find support for these ideas in Descartes' doubts about his own body. Descartes never doubts the mind, but he does doubt the body, and therefore any body could be our body. It is just a kind of vessel that functions according to mechanistic rules. Descartes' body can be seen in purely organic terms: it was the Creator Himself who once initiated its movements, and now it continues to move. It does not need a soul. For Descartes, the soul is no longer the principle or the cause of the body's movements.

This leads to two main ideas for posthumanism¹⁴: “the concrete body has no significance for the existence of a being” and “since the human mind can exist without the body, the continued existence of the human being as a mere ‘thinking thing’ in the computer is guaranteed for all eternity.”¹⁵ For the posthumanists, therefore, the immortality of the human being is guaranteed by the immortality of the mind.

Thus, as we have seen, the following pattern emerges: humanism sought to realize the greatness of the human being; transhumanism focuses on the human body; and posthumanism gives primacy to the mind. Humanism strengthened human reason and morality. The body was taken into account, but it was not the center of attention. Transhumanism, on the other hand, seeks to perfect the body in order to create a longer life. The body is to be technologically enhanced, and there are early attempts to transcend society’s gender binary. In posthumanism, the body recedes into the background; it becomes arbitrarily interchangeable and no longer really needed as such. Posthumanism wants the complete abstraction of the human being in a virtual existence, as this is the only way to guarantee the immortality of the human being through the immortality of the mind. Mortality is to be completely overcome technically.

This leads to different goals for transhumanism and posthumanism. Transhumanism¹⁶ is human-centered and individualistic, focusing on human continuity and valuing humanistic values. Posthumanism, on the other hand, goes beyond the human-centered, focuses on relationships and the deconstruction of human identity, and values a paradigm shift. Transhumanism is primarily concerned with enhancing and improving the human condition. The goal is to transcend current human limitations and create “transhumans”—individuals with enhanced abilities beyond what is currently considered normal for humans. Transhumanism also emphasizes individual choice and autonomy and aims to maintain a connection with humanity’s evolutionary history while seeking to develop and improve it in the spirit of humanistic values. Posthumanism questions the centrality of humans in the world and explores the possibility of a future in which humans coexist and interact with non-human entities. Posthumanism considers the interconnections and relationships between humans, machines, and the environment. It challenges traditional notions of human identity and subjectivity and represents a paradigm shift in thinking about the future of humanity and technology.

But both agree that humans have been using technology throughout history to improve their lives and the embracing technological advancements is a natural extension of this process. The book takes this very dictum and traces this process through history, from the automaton and humanism to posthumanism. The book is divided into four parts that attempt to trace the process from humanism to posthumanism, not necessarily chronologically, but conceptually. As a result, some chapters follow a certain chronology as ideas develop over time, while others take up similar concepts and show us how they have developed over time.

In Part I, *The “Evolution” of Human Physiology: the First Automata and Humanism*, mechanism and materialism of the sixteenth and seventeenth centuries are at the core. In Chapter 2, Michael Stolberg underlines that physicians of the sixteenth century already, long before the rise of “mechanical philosophy,” resorted to a range of mechanical and, in particular, hydraulic notions and images, to explain specific physiological and pathological phenomena in the body. Renaissance anatomists, in turn, devoted considerable attention to the precise anatomy of the arteries and veins and of other vessels and ducts which channeled and guided the flow of blood and spirits and of other fluids and vapors in the body. This new way of thinking has led to major advances in medicine and thus in the health and capabilities of human beings. In Chapter 3, Thomas A. Murphy emphasizes a new understanding of the concept of physiology. The chapter investigates the evolving use of the term *physiologia* (“physiology”) in Antiquity and in the sixteenth and seventeenth centuries. In the early modern period, there was a fundamental change in the ways the notions of “nature” and “thought” were conceptualized, which led to a split of these two notions. Understanding the ramifications of this split sheds light on the foundations of contemporary transhumanism. Charles Wolfe, in Chapter 4, questions the concept of materialism and vitalism in the early modern period. Materialism, and its approach to the body, are often presented as “mechanistic”: as signifying that the properties unique to organic, living, embodied agents are reduced to or specified as mechanistically specifiable properties that characterize matter as a whole. This is an inappropriate view of the human body: the materialist project, therefore, also focuses on “life” and embodiment, on vitalism, and on the uniqueness of organisms. This chapter, in conjunction with the preceding two chapters, establishes the conceptual framework that enabled early modern philosophers and intellectuals to address the notion of a distinct human nature, whether through its enhancement or transformation.

After discussing the core elements of the sixteenth- and seventeenth-century natural philosophy, i.e., physiology, mechanism, and materialism, the book moves on to the philosopher who combined these elements in his philosophy: Descartes. In Chapter 5, Jil Muller analyses Descartes' famous metaphor that opens the *Treatise of Man*: the human body as a machine created by God. Descartes' dualism allowed him to think about automata and machines and to consider the human body as functioning entirely mechanically, without the involvement of the soul. The chapter offers a precise analysis of the metaphor and of the functioning and role of some other devices and machines in Descartes' philosophy. This helps to understand the development of mechanics in the seventeenth century and the idea of automata, which would be perfected in the following century, among others, by Jacques Vaucanson's automata show. In Chapter 6, Albert Kozik emphasizes the connection between Vaucanson's automata shows and the topography of entertainment in eighteenth-century Paris. Vaucanson consciously referred to the visual language of *fêtes champêtres* and the conventions of garden amusement popular at the time to make his famous automata appear more life-like in the eyes of the beholders. Extending the park's space into the venue where the mechanical shows were staged helped the inventor to skillfully tune the expectations of the viewers to the possibilities of mechanical arts, so that they might easily believe in the ingenious mimetic qualities of the automata. In this way, Vaucanson wanted to make his automata more human-like, so that they could be a model of an improved human being, improved both physically and intellectually.

Part II, *The Foundations for Transhumanism and Posthumanism*, attempts to cross the boundaries of humanist thought into transhumanism and even posthumanism. As we have seen, the ideas of transhumanism and posthumanism are not new; they have their origins in humanism itself, and even, for some reasons, in Descartes's dualism. His dualism is at the center of the first article in this section. In Chapter 7, Richard Blum examines the historical process which enables the idea of robots by analyzing the mind-body problem. Dualism of spiritual or mental functions and the body is the subject of present day panpsychic attempts at establishing monism. The purpose is to make plausible the attempt to describe the mental and the psychic in human affairs by focusing on the physical, that is, the anatomical and empirical workings of the mind, which finds its origins in the humanist thought.

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